

## Embedded Systems

DFI's Durable Embedded Systems for Your Industrial-grade Applications



# DFI's Durable Embedded Systems for Your Industrial-grade Applications

DFI utilizes the latest computer technology to develop true industrial computers, providing high reliability, good scalability, and long product life cycle support. DFI's system family is able to satisfy a variety of intelligent solutions such as: IoT, Industry 4.0, transportation, digital healthcare, and smart energy.



## Embedded Systems Overview

### Fanless & Compact Embedded Systems



EC70A-SU

<b>6th Gen Intel® Core™ Processor</b>	P7
EC70A-SU, EC70B-SU	
<b>Intel Atom® Processor E3900</b>	P8-9
EC90A-AL, EC800-AL	
<b>Intel Atom® Processor E3800</b>	P9-10
EC700-BT, EC700-BT3054	
EC200-BT, EC210-BT, EC220/EC221-BT	
<b>NXP i.MX 6</b>	P8
EC900-FS6	

### High-Performance Embedded Systems



EC531-SD

<b>6th Gen Intel® Core™ Processor</b>	P12
EC500-SD, EC510/EC511-SD, EC531/EC532-SD	
<b>Intel® Xeon® Processor E3-1200 v3</b>	P13-14
EC532-DL, EC553-DL	
<b>4th Gen Intel® Core™ Processor</b>	P13-14
EC500-HD, EC510/EC511-HD, EC520/EC521-HD, EC531/EC532-HD	
EC541-HD, EC550/EC551-HD	
<b>3rd Gen Intel® Core™ Processor</b>	P15
EC300, EC310, EC320/EC321, EC322	



## Industry-Specific Embedded Systems



MD711-SU

<b>Intel® Xeon® Processor E3-1515M v5</b>	P18
OPS100-SH (OPS+ Media Player)	
<b>6th Gen Intel® Core™ Processor</b>	P18
MD711-SU (Medical Computing System)	
<b>Intel Atom® Processor E3800</b>	P18
VC230-BT (In-Vehicle Fanless System)	

## Pre-Configured Systems & Chassis



RM641-SD

<b>7th Gen Intel® Core™ Processor</b>	P21
WM342-KD331, WM342-KD330	
<b>6th Gen Intel® Core™ Processor</b>	P20-23
DT122-SD	
WM343-SD331, WM343-SD330	
RM641-SD	
<b>4th Gen Intel® Core™ Processor</b>	P20-23
DT122-HD	
RM641-HD	
<b>3rd Gen Intel® Core™ Processor</b>	P22
WM343-MB	
<b>2nd Gen AMD® Embedded R-Series</b>	P20
DT122-BE	

## Rugged Design

- Industrial-rated components with high MTBF over 100,000 hrs
- Extended operating temperatures
- High ESD protection for I/O ports
- Signal integrity measurement
- Wide range power design
- 100% Japanese-made solid capacitor
- Power hot plug protection for DC-in type SBC and Industrial Motherboards



## Software Integration

- Embedded BIOS and OS customization services
- Windows licensing offerings
- Android, Linux distribution (Yocto/Ubuntu/CentOS/Debian)
- Embedded API  
(Hardware Monitor, SMBus, I<sup>2</sup>C, Brightness Control, GPIO, Watchdog)
- Remote management utility



## Embedded Total Solution

- Express customization service: 30 days (NRE cost: project based)
- Strict revision control
- Long product life cycle support
- High volume OEM/ODM production capabilities



## DFI Provides a Total Solution Designed for Your Embedded Applications



Embedded Boards



Peripherals



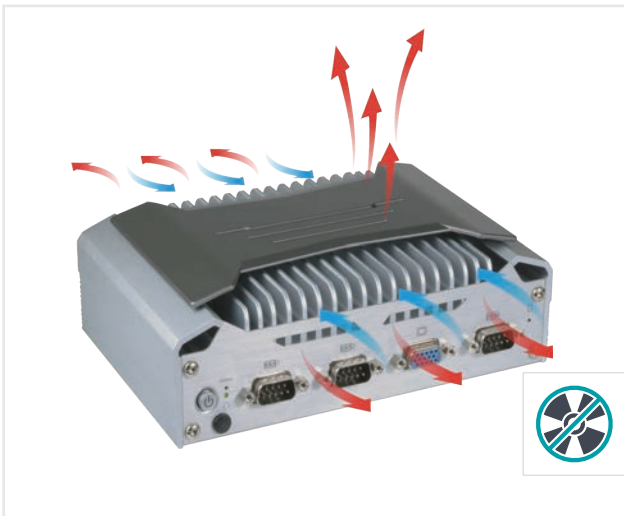
Systems



Embedded Software & BIOS

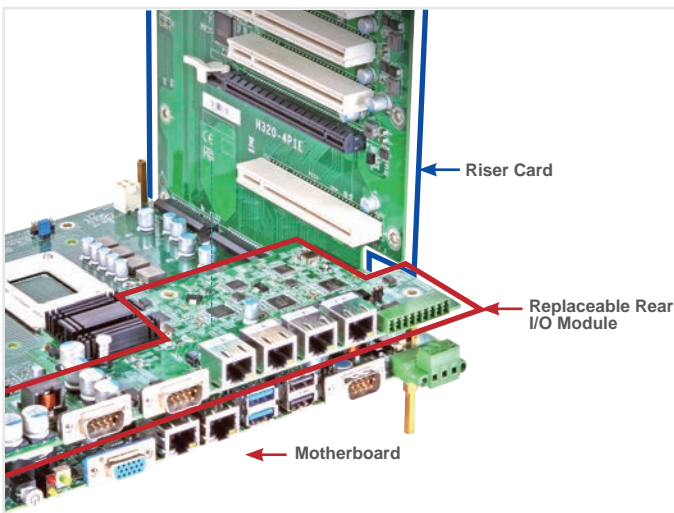


Vertical Solutions



### Small and Lightweight, but Powerful

- Powered by 6th Gen Intel® Core™ i7/i5/i3 processors with soldered down DDR4-2133MHz memory
- Optimized low profile thermal solution to improve system durability and reliability
- With ruggedized construction, the system survives a wide -20°C to +60°C operating temperature range



### Ultra-Flexible and Time-Saving Design

- Innovative modular concept designed to meet custom OEM requirements
- Replaceable I/O modules to provide I/O variations targeting industrial automation applications
- Multiple expansion configuration via different riser cards to offer flexibility to satisfy demanding requirements



### Various Form-Factors Pre-Configured Systems

- Full range of reliable embedded motherboards and industrial-grade chassis to select from
- Designed for fast and easy implementation with minimal setup at the best price-performance ratio
- Provides the configuration options you need with well-integrated hardware and software to drive your applications forward

# Fanless & Compact Embedded Systems

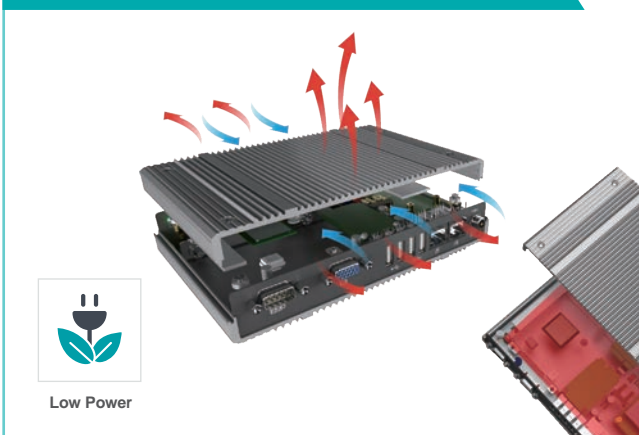
Low Power & Compact Solutions



## Features

DFI's industrial compact embedded systems, powered by 6th Gen Intel® Core™ U series processors and/or Intel Atom® processor, deliver extremely low power consumption in an ultra-small size as well as efficient fanless thermal solutions. The systems are also equipped with extensive I/O interfaces and have efficient wireless connectivity to the cloud; making them ideal candidates to a wide range of industrial applications such as factory automation, IoT gateways, and smart healthcare.

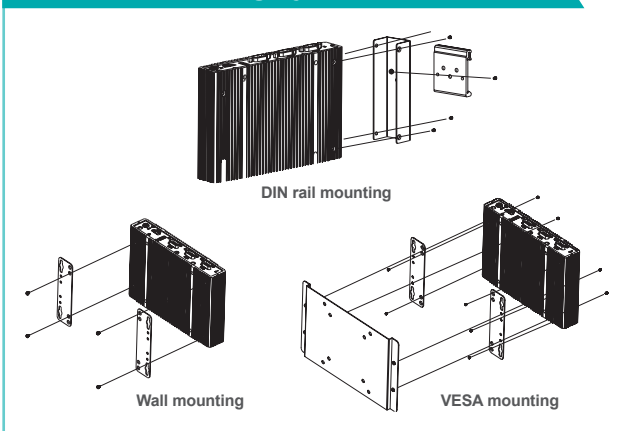
### Fanless with Low Power Consumption



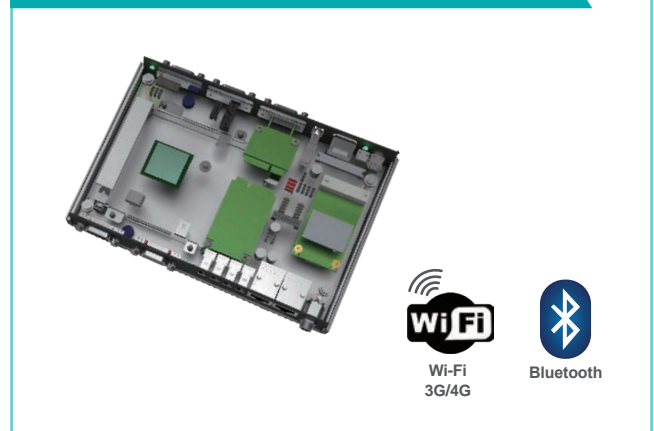
### Compact and Rugged Design



### Multiple Mounting Type



### Rich Wireless Connectivity



## 6th Gen Intel Core Processor-based Systems



Model Name		EC70A-SU	EC70B-SU
Platform		ULT	
System	Processor	6th Gen Intel® Core™ U Processor	
	Socket	BGA 1356	
	Max. Speed	2.3~2.6GHz	
	TDP	15W	
	Cache	3/4M	
	Chipset	-	-
	BIOS	Insyde 128Mbit SPI	
Memory	Technology	Dual Channel DDR4 2133MHz	
	Max. Capacity	4/8GB	
	Socket	Memory Onboard	
Graphics	Connector	1 VGA, 1 HDMI	1 VGA/DP (DP available upon request), 1 HDMI
Storage		1x 2.5" SATA 3.0 Drive Bay	1 mSATA 1 M.2/CFast Slot (CFast slot available upon request)
Expansion	PCIe, PCI	-	-
	Mini PCIe	2 Mini PCIe	
	SIM, micro SD	-	-
Audio	Audio Codec	Realtek ALC888	
Ethernet	Controller	1 Intel® I210, 1 Intel® I219	1 Intel® I210, 1 Intel® I219, 2 Intel® I210 for PoE
LED	Indicators	Power, HDD LED	
I/O	Ethernet (GbE)	2	4
	Serial	4 RS-232/422/485	4 RS-232/422/485, 2 RS-232
	USB	4 USB 3.0	6 USB 3.0
	Display	1 VGA, 1 HDMI	1 VGA/DP, 1 HDMI
	DIO	8-bit DIO via DB-9 port	
	Buttons	Power, Reset Button	
	Wi-Fi Antenna	2 Holes	
	Audio	Mic-in, Line-out	
Power		15~36V DC-in	
OS Support		Win7, WES 7, Win8.1, WE8S, Win10	
Mechanism	Construction	Aluminum + Metal Aluminum	
	Mounting	Wall/VESA/Din Rail Mount	
	Dimensions	181.6 x 57 x 118.4mm (W x H x D)	184 x 82 x 118.4mm (W x H x D)
Environment	Operating Temp.	-20°C~60°C	



Model Name		EC90A-AL	EC900-FS6
Platform		Atom	ARM
System	Processor	Intel Atom® Processor E3900	NXP i.MX6 Dual Lite
	Socket	BGA 1296	21x21 BGA
	Max. Speed	1.1~2.5GHz	1.0GHz
	TDP	6.5W/9.5W	-
	Cache	2M	-
	Chipset	-	-
	BIOS	Insyde SPI 128Mbit	-
Memory	Technology	Dual Channel LPDDR4 2133MHz	Single Channel DDR3L 1600MHz
	Max. Capacity	2/4GB	1/2GB SDRAM
	Socket	Memory Onboard	Memory Onboard
Graphics	Connector	1 Mini-DP	1 HDMI
Storage		16GB/32GB eMMC	4MB NOR Flash 8GB/16GB eMMC
Expansion	PCIe, PCI	-	-
	Mini PCIe	1 Mini PCIe	1 Mini PCIe
	SIM, micro SD	-	1 micro SD
Audio	Audio Codec	-	-
Ethernet	Controller	2 Intel® I210IT	2 GbE
LED	Indicators	Power LED, HDD LED	Status LED
I/O	Ethernet (GbE)	2	2
	Serial	1 RS-232/422/485	External: 1 RS-485, 1 RS-232, 1 UART
	USB	1 USB 2.0, 2 USB 3.0	External: 2 USB 2.0, Internal: 1 USB 2.0, 1 OTG USB
	Display	1 Mini-DP	1 HDMI
	DIO	8-bit DIO via DB-9 port	4-bit DIO
	Buttons	Power Button, Reset Button	Power Reset Button
	Wi-Fi Antenna	2 Holes	2 Holes
	Audio	-	-
Power		12V DC-in	9~36V DC-in
OS Support		Windows 10 IoT, Ubuntu, Linux Yocto	Yocto, Android
Mechanism	Construction	Aluminum + Metal	Sheet Metal
	Mounting	Wall/Din Rail Mount	Din Rail Mount
	Dimensions	TBD	145 x 34 x 96.4mm (W x H x D)
Environment	Operating Temp.	-40°C~70°C	-20°C~60°C (standard), -40°C~70°C (wide-temp)



## Intel Atom Processor-based Systems



Model Name		EC800-AL	EC700-BT	EC700-BT3054
Platform		Atom		
System	Processor	Intel Atom® Processor E3900	Intel Atom® Processor E3800	
	Socket	BGA 1296	BGA 1170	
	Max. Speed	1.1~2.5GHz	1.33~2.41GHz	1.91~2.41GHz
	TDP	6/9/12W	4.3/6/10W	10W
	Cache	2M	1/2M	2M
	Chipset	-	-	-
	BIOS	Insyde SPI 128Mbit	AMI 64Mbit SPI	AMI 64Mbit SPI
Memory	Technology	Dual Channel LPDDR4 2400MHz	Single Channel DDR3L 1066/1333MHz	
	Max. Capacity	4/8GB	2/4GB	2/4GB
	Socket	Memory Onboard	ECC/non-ECC Memory Onboard	Memory Onboard
Graphics	Connector	1 VGA/DVI-D, 2 Mini-DP/Micro-HDMI	1 HDMI + 1 VGA or 1 DVI-I	1 VGA or 1 DVI-I
Storage		-	1x 2.5" SATA 2.0 Drive Bay, eMMC Onboard (opt.) microSD (opt.)	1x 2.5" SATA 2.0 Drive Bay, eMMC Onboard (opt.) microSD
Expansion	PCIe, PCI, M.2	2 M.2	-	-
	Mini PCIe	1 Mini PCIe	3 Mini PCIe	2 Mini PCIe
	SIM	-	1 SIM	1 SIM
Audio	Audio Codec	Realtek ALC262	Realtek ALC888	
Ethernet	Controller	2 Intel® I210	2 Intel® I210	4 Intel® I210
LED	Indicators	Power LED, HDD LED	Status, HDD LED	
I/O	Ethernet (GbE)	2	2	4
	Serial	2 RS-232/422/485	4 RS-232/422/485	3 RS-232/422/485
	USB	2 USB 2.0, 2 USB 3.0	4 USB 2.0, 1 USB 3.0	4 USB 2.0, 1 USB 3.0
	Display	1 VGA/DVI-D, 2 Mini-DP/Micro-HDMI	1 HDMI + 1 VGA or 1 DVI-I	1 VGA or 1 DVI-I
	DIO	8-bit DIO via DB-9 port	8-bit DIO via DB-9 port	8-bit DIO via DB-9 port
	Buttons	Power Button	Power, Reset Button	
	Wi-Fi Antenna	2 Holes	3 Holes	
	Audio	Line-out, Mic-in	-	-
Power		9~36V DC-in	9~36V DC-in	
OS Support		Windows 10 IoT, Ubuntu, Linux Yocto	Win7, WES 7 Win8, WE8S, Win8.1, Win10	Win7, WES 7, Win8.1, WE8S, Win10, Ubuntu 14.04LTS
Mechanism	Construction	Aluminum	Aluminum + Metal Aluminum	
	Mounting	Wall/VESA/Din Rail Mount		
	Dimensions	161 x 35.1 x 108.2mm (W x H x D)	180 x 33 x 121.2mm (W x H x D)	
Environment	Operating Temp.	-20°C~60°C (standard), -40°C~60°C (wide-temp, E3950/N4200), -40°C~60°C (wide-temp, E3940/E3930)	-20°C~60°C / 0°C~60°C	



Model Name		EC200-BT	EC210-BT	EC220/EC221-BT
Platform		Atom		
System	Processor	Intel® Atom™ Processor E3800		
	Socket	BGA 1170		
	Max. Speed	1.91GHz		
	TDP	10W		
	Cache	2M		
	Chipset	-		
	BIOS	AMI 64Mbit SPI		
Memory	Technology	Dual Channel DDR3L 1333MHz		
	Max. Capacity	8GB		
	Socket	2 SODIMM		
Graphics	Connector	1 VGA, 1 DVI-D		
Storage		2x 2.5" SATA 2.0 Drive Bay		
Expansion	PCIe, PCI	-	1 PCI	2 PCI (EC220) 1 PCI + 1 PCIe x16 (EC221)
	Mini PCIe	1 Mini PCIe	1 Mini PCIe	1 Mini PCIe
	SIM	-		
Audio	Audio Codec	Realtek ALC888		
Ethernet	Controller	2 Intel® I210		
LED	Indicators	Power, HDD, Alert LED		
Power		9~36V DC-in		
OS Support		Win7, WES7, Win8.1, WE8S, Win10		
Mechanism	Construction	Aluminum + SGCC		
	Mounting	Wall/VESA Mount		
	Dimensions	275 x 59 x 203mm (W x H x D)	275 x 94 x 203mm (W x H x D)	275 x 114 x 203mm (W x H x D)
Environment	Operating Temp.	0°C~55°C/0°C~50°C		



## Replaceable I/O Boards

I/O Interface Selection		-BTA881	-BTAG60	-BT6060
I/O	Ethernet (GbE)	2		
	Serial	8 RS-232/422/485, 2 RS-232	8 RS-232/422/485, 2 RS-232	4 RS-232/422/485, 2 RS-232
	USB	7 USB 2.0, 1 USB 3.0	5 USB 2.0, 1 USB 3.0	
	Display	1 VGA, 1 DVI-D	1 VGA	
	Audio	1 Speaker-out		
	DIO	8-bit DIO	16-bit DIO	-
	Buttons	Power, Reset Button		
	Wi-Fi Antenna	2 Holes		

# High-Performance Embedded Systems

Advanced Computing Solutions

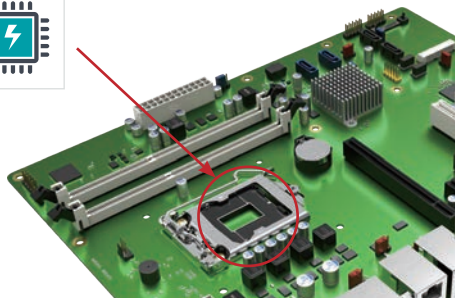
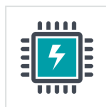


## Features

DFI's EC500 series is based on the powerful Intel® Xeon® Workstation and/or 6th Gen Intel® Core™ Desktop platform with advanced graphics and computing performance. These powerful embedded systems are available in compact designs and expansibility. Their high flexibility and reliability will fulfill your various I/O requirements and deliver high computing performance in industry environments.

### Workstation & Desktop Platforms

6th/4th Gen Intel® Core™ Processor

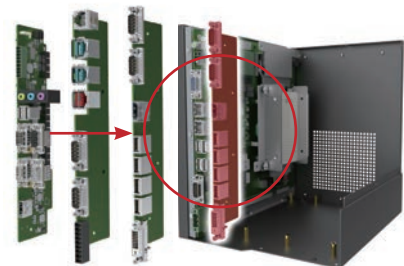


### Replaceable I/O Interfaces

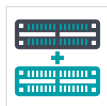
We accept custom-made I/O board on an MOQ basis



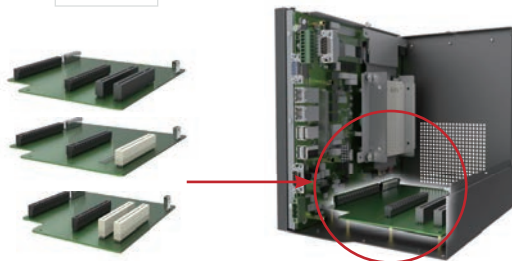
Customized I/O Board



### Expandable Riser Cards



Multiple Expansion



### Wide Voltage : 9~36V DC



9V-36V



Model Name		EC500-SD	EC510/EC511-SD	EC531/EC532-SD
Platform		Desktop		
System	Processor	6th Gen Intel® Core™ Processor		
	Socket	LGA 1151		
	Max. Speed	2.3~3.4 GHz		
	TDP	35W		
	Cache	4/6/8M		
	Chipset	Intel® Q170 Chipset		
	BIOS	Insyde SPI 128Mbit		
Memory	Technology	Dual Channel DDR4 1866/2133MHz		
	Max. Capacity	32GB		
	Socket	2 SODIMM		
Graphics	Connector	1 VGA, 1 DVI (DVI-D signal), 1 HDMI/DP		
Storage		1x 2.5" SATA 3.0 Drive Bay, 1 CFast	2x 2.5" SATA 3.0 Drive Bay (RAID 0/1)	
Expansion	PCIe, PCI	-	1 PCI (EC510) 1 PCIe x16 (EC511)	2 PCI + 1 PCIe x16 (EC531) 1 PCI + 2 PCIe x16 (EC532)
	Mini PCIe	2 Mini PCIe		
	SIM	-	-	-
Audio	Audio Codec	Realtek ALC888		
Ethernet	Controller	1 Intel® I211, 1 Intel® I219	1 Intel® I211, 4 Intel® I210, 1 Intel® I219	1 Intel® I211, 1 Intel® I219
LED	Indicators	Power, HDD LED		
I/O	Ethernet (GbE)	2	2 GbE + 4 PoE or 6 GbE	2
	Serial	4 RS-232/422/485	3 RS-232/422/485	6 RS-232/422/485
	USB	2 USB 2.0, 4 USB 3.0	4 USB 3.0	8 USB 3.0
	Display	1 VGA, 1 DVI (DVI-D signal), 1 HDMI/DP		
	Audio	Mic-in, Line-out		
	DIO	-	16-bit DIO	8-bit DIO
	Buttons	Reset, Power Button		
	Wi-Fi Antenna	2	-	-
Power		9~36V DC-in		
OS Support		Win7, Win8.1, Win10		
Mechanism	Construction	Aluminum + SGCC		
	Mounting	Wall Mount		
	Dimensions	235 x 63.2 x 222mm (W x H x D)	235 x 102.5 x 222mm (W x H x D)	235 x 153.8 x 222mm (W x H x D)
Environment	Operating Temp.	0°C~50°C		

## Intel Xeon & 4th Gen Intel Core Processor-based Systems



Model Name		EC500-HD	EC510/EC511-HD	EC520/EC521-HD	EC531/EC532-HD	EC532-DL
Platform		Desktop				Workstation
System	Processor	4th Gen Intel® Core™ Processor				Intel® Xeon® Processor E3-1200 v3/ 4th Gen Intel® Core™ Processor
	Socket	LGA 1150				
	Max. Speed	2.2~3.3 GHz				
	TDP	35/45W				
	Cache	2/3/4/6/8M				
	Chipset	Intel® H81 Chipset				Intel® C226 Chipset
	BIOS	AMI 64Mbit SPI				
Memory	Technology	Dual Channel DDR3 1333/1600MHz				
	Max. Capacity	16GB				
	Socket	2 SODIMM				
Graphics	Connector	1 VGA			1 VGA, 1 DVI-I	
Storage		1x 2.5" SATA 3.0 Drive Bay	2x 2.5" SATA 3.0 Drive Bay			
Expansion	PCIe, PCI	-	1 PCI (EC510) 1 PCIe x16 (EC511)	2 PCI (EC520) 1 PCI + 1 PCIe x16 (EC521)	2 PCI + 1 PCIe x16 (EC531) 1 PCI + 2 PCIe x16 (EC532)	1 PCI + 2 PCIe x16
	Mini PCIe	1 Mini PCIe				
	SIM	-	-	-	-	-
Audio	Audio Codec	Realtek ALC886				
Ethernet	Controller	1 Intel® I210, 1 Intel® I217	1 Intel® I210, 1 Intel® I217, 3 Intel® 82574	1 Intel® I210, 1 Intel® I217	1 Intel® I210, 1 Intel® I217	1 Intel® I210, 1 Intel® I217
LED	Indicators	Status, HDD LED				
I/O	Ethernet (GbE)	2	5	2	2	2
	Serial	2 RS-232/422/485 4 RS-232	4 RS-232/422/485 2 RS-232	2 RS-232/422/485 4 RS-232	3 RS-232/422/485, 3 RS-232	
	USB	4 USB 2.0, 2 USB 3.0	2 USB 2.0, 2 USB 3.0		2 USB 2.0, 6 USB 3.0	
	Display	1 VGA			1 VGA, 1 DVI-I	
	Audio	-	-	-	Mic-in, Line-in, Line-out	
	DIO	-	2 x 8-bit DIO	-	8-bit DIO	
	Buttons	Power, Reset Button				
Power		9~36V DC-in				
OS Support		Win XP (32-bit), Win7, WES 7, Win8, WE8S, Win10				Win7, WES7, Win8, WE8S, Win10
Mechanism	Construction	Aluminum + SGCC				
	Mounting	Wall Mount				
	Dimensions	235 x 63.2 x 222mm (W x H x D)	235 x 102.5 x 222mm (W x H x D)	235 x 102.5 x 222mm (W x H x D)	235 x 153.8 x 222mm (W x H x D)	
Environment	Operating Temp.	0°C~45°C				

## Intel Xeon & 4th Gen Intel Core Processor-based Systems



Model Name		EC541-HD	EC550/EC551-HD	EC553-DL
Platform		Desktop		Workstation
System	Processor	4th Gen Intel® Core™ Processor		Intel® Xeon® Processor E3-1200 v3/ 4th Gen Intel® Core™ Processor
	Socket	LGA 1150		
	Max. Speed	2.2~3.3GHz (Fanless) 2.7~4.0 GHz (Fan)	2.2~4.0 GHz	2.2~3.9 GHz
	TDP	35/45W (Fanless) 53/54/65W (Fan)	35/45/53/54/65W	
	Cache	2/3/4/6/8M		
	Chipset	Intel® H81 Chipset		Intel® C226 Chipset
	BIOS	AMI 64Mbit SPI		
Memory	Technology	Dual Channel DDR3 1333/1600MHz		
	Max. Capacity	16GB		
	Socket	2 SODIMM		
Graphics	Connector	1 VGA, 1 DVI-D, 1 DP	1 VGA, 1 DP	
Storage		2x 2.5" SATA 3.0 Drive Bay		
Expansion	PCIe, PCI	3 PCI + 1 PCIe x16	5 PCI (EC550) 4 PCI + 1 PCIe x16 (EC551)	2 PCI 2 PCIe x16 + 1 PCIe x4
	Mini PCIe	1 Mini PCIe		
	SIM	-	-	-
Audio	Audio Codec	Realtek ALC886		
Ethernet	Controller	1 Intel® I210, 1 Intel® I217		
LED	Indicators	Status, HDD LED		
I/O	Ethernet (GbE)	2	2	2
	Serial	6 RS-232/422/485	4 RS-232/422/485	
	USB	4 USB 2.0, 2 USB 3.0		
	Display	1 VGA, 1 DVI-D, 1 DP	1 VGA, 1 DP	
	Audio	Mic-in, Line-in, Line-out		
	DIO	8-bit DIO		
	Buttons	Power, Reset Button		
Power		9~36V DC-in		
OS Support		Win XP (32-bit), Win7, WES 7, Win8, WE8S, Win10		Win7, WES7, Win8, WE8S
Mechanism	Construction	Aluminum + SGCC		
	Mounting	Wall Mount		
	Dimensions	235 x 208.2 x 222mm (W x H x D)		
Environment	Operating Temp.	0°C~45°C (Fanless) 0°C~55°C (Fan)	0°C~50°C	0°C~50°C

## 3rd Gen Intel Core Processor-based Systems



Model Name		EC300	EC310	EC320/EC321	EC322
Platform		Mobile			
System	Processor	3rd/2nd Gen Intel® Core™ Processor			
	Socket	G2 988B			
	Max. Speed	1.6~3.3GHz			
	TDP	35/45W			
	Cache	2/3/6M			
	Chipset	Intel® QM77 Chipset			
	BIOS	AMI 64Mbit SPI			
Memory	Technology	Dual Channel DDR3/DDR3L 1066/1333/1600MHz			
	Max. Capacity	16GB			
	Socket	2 SODIMM			
Graphics	Connector	1 VGA, 1 DVI-D (opt.)			
Storage		2 x 2.5" SATA 3.0 Drive Bay, 1 CompactFlash			
Expansion	PCIe, PCI	-	1 PCI	2 PCI (EC320) 1 PCI + 1 PCIe x16 (EC321)	2 PCIe x16
	Mini PCIe	1 Mini PCIe, 1 Mini PCIe (opt.)			
	SIM	1 SIM (opt.)			
Audio	Audio Codec	Realtek ALC262			
Ethernet	Controller	Intel® 82579, Intel® 82574			
LED	Indicators	Power, HDD, Alert LED			
Power		9~30V DC-in			
OS Support		Win XP, WES 2009, POSReady 2009, Win7, WES7, Win8.1, WE8S			
Mechanism	Construction	Aluminum + SGCC			
	Mounting	Wall Mount			
	Dimensions	340.5 x 88 x 223mm (W x H x D)	340.5 x 120.5 x 223mm (W x H x D)	340.5 x 140.5 x 223mm (W x H x D)	340.5 x 140.5 x 223mm (W x H x D)
Environment	Operating Temp.	0°C~55°C / 0°C~60°C			



### Replaceable I/O Boards

I/O Interface Selection		-CR6881	-CR6G60	-CR6A060	-CR4G65	-CR4866
I/O	Ethernet (GbE)	2			5	6 (2 GbE + 4 PoE)
	Serial	6 RS-232/422/485		10 RS-232/422/485	4 RS-232/422/485	2 RS-232/422/485 2 RS-232
	USB	6 USB 2.0, 2 USB 3.0	4 USB 2.0, 2 USB 3.0			
	Display	1 VGA, 1 DVI-D	1 VGA			
	Audio	1 Speaker-out				
	DIO	8-bit DIO	16-bit DIO	-	16-bit DIO	8-bit DIO
	Buttons	Power, Reset Button				
	Wi-Fi Antenna	2 Holes				

# Industry-Specific Embedded Systems

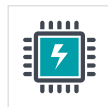
Application-Oriented Solutions



## OPS+

Featuring 3 display outputs with 4K resolution @ 60Hz and fully compliance with the Open Pluggable Specification Plus (OPS+), DFI's OPS100-SH digital signage system provides exceptional multimedia solutions to high computing intensive digital signage and white board markets such as interactive AR and multi-display applications.

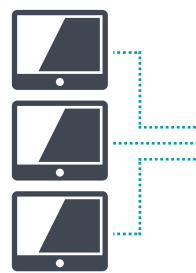
### High-Performance Intel Xeon



Intel® Xeon®



### 3 Display Ports Support 4K @ 60Hz

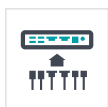


3 Displays

## Medical Computing

DFI's MD711-SU is a high-performance fanless embedded system designed to work with medical equipment and all the accompanying demands. It supports high-end 6th Generation Intel® Core™ i7 processor and is built with high quality industrial-grade components to ensure the entire unit is durable and reliable to run 24/7, 365 in hospitals.

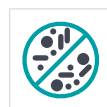
### 4KV Isolated I/O Ports



Isolated I/O



### Medical-Grade Antibacterial Finish



Antibacterial finish





## In-Vehicle System

DFI's in-vehicle system delivers efficient computing power, rich I/O, and sufficient expansion interfaces allowing to easily collect data from numbers of vehicle-based sensors via wire/wireless connectivity and analyze the data for real-time feedbacks to drivers and the central control center. With rugged design, the system is also able to operate effectively and stably under critical conditions including moving vehicles and outdoor environments. It's a best candidate as the IoT devices controller of bus, truck, or taxi.

### CAN-Bus Interface Support

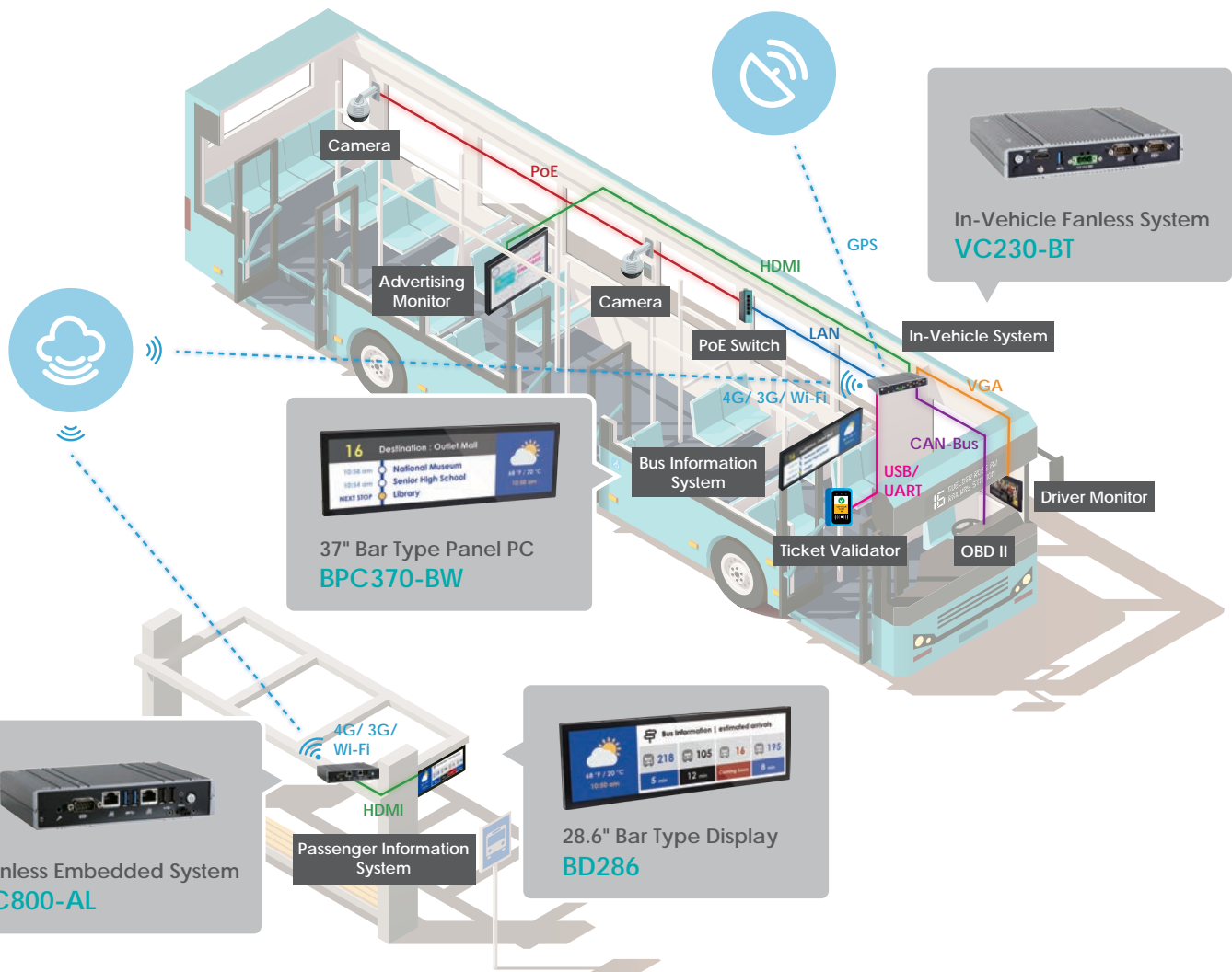


CAN-Bus  
(optional)

### In-Vehicle Power Protector



In-Vehicle Power Protector



## Intel Xeon & 6th Gen Intel Core & Intel Atom Processor-based Systems



Model Name		OPS100-SH	MD711-SU	VC230-BT
Platform		Mobile	ULT	Atom
System	Processor	Intel® Xeon® Processor E3-1515M v5	6th Gen Intel® Core™ Processor	Intel Atom® Processor E3800
	Socket	BGA1440	BGA 1356	BGA 1170
	Max. Speed	2.8~3.7GHz	2.4~2.6GHz	1.33~1.91GHz
	TDP	45W	15W	6/10W
	Cache	8M	3/4M	1/2M
	Chipset	Intel® CM236	-	-
	BIOS	Insyde SPI 16Mbit	Insyde SPI 128Mbit	AMI 64Mbit SPI
Memory	Technology	Dual Channel DDR4 2400/2133MHz	Dual Channel DDR4 2133MHz	Single Channel DDR3L 1066/1333MHz
	Max. Capacity	32GB	32GB	2/4GB
	Socket	2 SODIMM	2 SODIMM	ECC Memory Onboard
Graphics	Connector	1 HDMI-in 1 HDMI 2.0 Output + 2 DP 1.2 Output (via JAE & 2nd connector interface)	1 DP/HDMI (HDMI available upon request), 1 DVI-D	1 HDMI, 1 VGA
Storage		-	1x 2.5" SATA 3.0 Drive Bay	eMMC Onboard (opt.)
Expansion	PCIe, PCI, M.2	2 M.2	1 PCIe x16, 1 M.2	-
	Mini PCIe	-	1 Mini PCIe	3 Mini PCIe
	SIM, microSD	1 micro SD Card Slot	-	1 micro SD Card Slot (opt.)
Audio	Audio Codec	-	Realtek ALC888	Realtek ALC888
Ethernet	Controller	1 Intel® I219	1 Intel® I211, 1 Intel® I219	2 Intel® I210
LED	Indicators	Power, HDD LED	Power, HDD LED	Status, HDD LED
I/O	Ethernet (GbE)	1	2	2
	Serial	1 RS-232	2 RS-232	3 RS-232/422/485
	USB	4 USB 3.0	4 USB 3.0, 2 USB 2.0	4 USB 2.0, 1 USB 3.0
	Display	1 HDMI-in	1 DP/HDMI, 1 DVI-D	1 HDMI, 1 VGA
	DIO	-	-	8-bit DIO via DB-9 port (opt.)
	Buttons	Power, Reset Button	Power Button	Power, Reset Button
	Wi-Fi Antenna	2	3	2
	Audio	Line-out, Mic-in	Line-out, Mic-in	-
	Interfaces	JAE TX25A: 1 HDMI 2.0 1 DP 1.2 2 USB 2.0 1 USB 3.0 HRS FX18: 1 DP 1.2 2 USB 3.0 PCIe x4 signal	4kV isolated I/O ports: 2 GbE 2 RS-232 2 USB 2.0	CAN-Bus via DB-9 port (opt.) In-Vehicle Power Management Includes Ignition On/Off and System On/Off Delay Time Control
Power		12~19V DC-in	9~36V DC-in	9~36V (VCC/ACC/GND)
OS Support		Win10 Enterprise, Win8.1	Win7, Win8.1, Win10, WES 7, WE8S	Win7, Win8.1, Win10, WES 7
Mechanism	Construction	Aluminum + SGCC	Aluminum + Metal Aluminum	Aluminum + Metal Aluminum
	Dimensions	180 x 30 x 119mm (W x H x D)	182 x 97.6 x 200mm (W x H x D)	180 x 33 x 121.2mm (W x H x D)
Environment	Operating Temp.	0°C~45°C	0°C~40°C (w/0.7m air flow)	-20°C~60°C

# Pre-Configured Systems & Chassis

Scalable & Flexible Solutions



## Features

DFI's desktop box PCs are preconfigured systems comprising of industrial chassis and DFI's latest Intel/AMD platform-based embedded boards (ATX, microATX, Mini-ITX, and SBC) which provide various selections from DFI's embedded computing portfolio with the benefits of customization flexibility. With high integration, wide compatibility, and outstanding product longevity, the box PCs are the ideal solutions for a wide range of embedded applications.

**ES520 for 3.5" SBC**



**DT122 for Mini-ITX**



**WM343 for microATX**



**RM641 for ATX**



## 6th/4th Gen Intel Core & 2nd Gen AMD R-Series Processor-based Systems



Model Name		DT122-SD	DT122-HD	DT122-BE
Platform		Desktop		AMD
System	Processor	6th Gen Intel® Core™ Processor	4th Gen Intel® Core™ Processor	2nd Gen AMD® Embedded R-Series
	Socket	LGA 1151	LGA 1150	APU FP3 BGA
	Max. Speed	2.3~3.4GHz	2.2~4.0GHz	2.7~3.6GHz
	TDP	35W	35/45/53/54/65W	35W
	Cache	2/3/4/6/8M	2/3/4/6/8M	4M
	Chipset	Intel® Q170/H110 Chipset	Intel® H81 Chipset	AMD® A77E
	BIOS	Insyde SPI 128Mbit	AMI SPI 64Mbit	Insyde SPI 64Mbit
Memory	Technology	Dual Channel DDR4 1866/2133MHz	Dual Channel DDR3 1333/1600MHz	Dual Channel DDR3/DDR3L 1600/1866/2133MHz
	Max. Capacity	32GB	16GB	16GB
	Socket	2 SODIMM		
Graphics	Connector	1 VGA, 1 DVI-I (DVI-D signal) 1 DP++	1 HDMI, 1 DVI-I	4 DP
Storage		1x 3.5" or 2x 2.5" SATA 3.0 1x 5.25" Optical Drive Bay	2x 2.5" or 1x 3.5" SATA 3.0 Drive Bay	2x 2.5" or 1x 3.5" SATA 3.0 Drive Bay
Expansion	PCIe, PCI	1 PCIe x16 or 1 PCI	1 PCIe x16 or 1 PCI	1 PCIe x16
	Mini PCIe	1 Mini PCIe		
Audio	Audio Codec	Realtek ALC888	Realtek ALC886	Realtek ALC888
Ethernet	Controller	1 Intel® I210, 1 Intel® I219 (Q170) 1 Intel® I211, 1 Intel® I219 (H110)	1 Intel® I210, 1 Intel® I217	1 Intel® I210, 1 Realtek RTL8111EP
LED	Indicators	Power, HDD LED		
I/O	Ethernet (GbE)	2	2	2
	Serial	1 RS-232	2 RS-232	-
	USB	4 USB 2.0, 2 USB 3.0	4 USB 2.0, 2 USB 3.0	4 USB 3.0
	Display	1 VGA, 1 DVI-I (DVI-D signal) 1 DP++	1 HDMI, 1 DVI-I	4 DP
	DIO	-	-	-
	Audio	Line-in (opt.), Mic-in, Line-out	Mic-in, Line-in, Line-out	Mic-in, Line-in, Line-out
	PS/2	1	1	-
	Buttons	Power, Reset Button		
Power		Flex ATX 250W		
OS Support		Win7, WES7, Win8.1, Win10 IoT Enterprise, Debian, CentOS, Ubuntu	Win7, WES7, Win8, WES8	Win7, Win8.1
Mechanism	Construction	Aluminum + Sheet Metal		
	Mounting	Wall Mount		
	Dimensions	300 x 75 x 217mm (W x H x D)		
Environment	Operating Temp.	0°C~45°C		

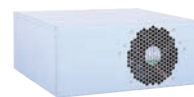
## 7th Gen Intel Core Processor-based Systems

Coming Soon

Coming Soon

Model Name		WM342-KD331	WM342-KD330
Platform		Desktop	
System	Processor	7th Gen Intel® Core™ Processor	
	Socket	LGA 1151	
	Max. Speed	3.4~4.2GHz	
	TDP	65W	
	Cache	3/6/8M	
	Chipset	Intel® C236/Q170 Chipset	Intel® Q170/H110 Chipset
	BIOS	Insyde SPI 128Mbit	
Memory	Technology	Dual Channel DDR4 2133/2400 MHz	
	Max. Capacity	64GB	64GB (Q170), 32GB (H110)
	Socket	4 ECC DIMM (C236), 4 DIMM (Q170)	4 DIMM (Q170), 2 DIMM (H110)
Graphics	Connector	1 VGA, 1 DVI-I (DVI-D signal), 1 DP++	
Storage		2x 2.5" SATA 3.0 Drive Bay	
Expansion	PCIe, PCI	1 PCIe x16, 1 PCIe x4	
	Mini PCIe, M.2	1 M.2	1 Mini PCIe, 1 Mini PCIe (opt.) (Q170)
Audio	Audio Codec	Realtek ALC888	
Ethernet	Controller	3 Intel® I210, 1 Intel® I219	1 Intel® I210, 1 Intel® I219
LED	Indicators	Power, HDD LED	
I/O	Ethernet (GbE)	4	2
	Serial	1 RS-232/422/485 (RS-232 w/power)	
	USB	2 USB 2.0, 4 USB 3.0	
	Display	1 VGA, 1 DVI-I (DVI-D signal), 1 DP++	
	DIO	-	-
	Audio	-	Line-out, Line-in
	PS/2	1	1
	Buttons	Power Button	
Power		Flex ATX 150W/250W/350W/400W/500W	
OS Support		Win10 IoT Enterprise	
Mechanism	Construction	Sheet Metal	
	Mounting	Wall Mount	
	Dimensions	306.6 x 132.1 x 301.9mm (W x H x D)	
Environment	Operating Temp.	0°C~45°C	

## 6th/3rd/2nd Gen Intel Core Processor-based Systems



Model Name		WM343-SD331	WM343-SD330	WM343-MB
Platform		Desktop		Desktop
System	Processor	6th Gen Intel® Core™ Processor		3rd/2nd Gen Intel® Core™ Processor
	Socket	LGA 1151		LGA 1155
	Max. Speed	2.3~4.0GHz		2.7~3.9GHz
	TDP	35/65/80W	35/47/65W	55/65/77/95W
	Cache	2/3/4/6/8M		2/3/6/8M
	Chipset	Intel® C236/Q170 Chipset	Intel® Q170/H110 Chipset	Intel® Q77 Chipset
	BIOS	Insyde SPI 128Mbit		AMI SPI 64Mbit
Memory	Technology	Dual Channel DDR4 1866/2133MHz		Dual Channel DDR3 1066/1333/1600MHz
	Max. Capacity	64GB	64GB (Q170), 32GB (H110)	32GB
	Socket	4 ECC DIMM (C236), 4 DIMM (Q170)	4 DIMM (Q170), 2 DIMM (H110)	4 DIMM
Graphics	Connector	1 VGA, 1 DVI-I (DVI-D signal) 1 DP++		1 HDMI, 2 DVI-I (MB330-CRM) 1 VGA, 1 HDMI (MB331-CRM)
Storage		1x 3.5"/2.5" SATA 3.0 1x 2.5" SATA 3.0 (opt.) 1x 5.25" Optical Drive Bay (opt.)		1x 3.5"/2.5" SATA 3.0 1x 2.5" SATA 3.0 (opt.) 1x 5.25" Optical Drive Bay (opt.)
Expansion	PCIe, PCI	2 PCIe x16, 2 PCIe x4	1 PCIe x16, 1 PCIe x4	1 PCIe x16, 1 PCIe x4, 2 PCI
	Mini PCIe	-	1 (Q170)	1 Mini PCIe (MB330-CRM)
Audio	Audio Codec	Realtek ALC888		Realtek ALC886
Ethernet	Controller	1 Intel® I210, 1 Intel® I219	1 Intel® I210, 1 Intel® I219 (Q170) 1 Intel® I211, 1 Intel® I219 (H110)	1 Intel® 82574, 1 Intel® 82579
LED	Indicators	Power, HDD LED		Power, HDD LED
I/O	Ethernet (GbE)	2	2	2
	Serial	1 RS-232/422/485, 5 RS-232		1 RS-232/422/485 (MB330-CRM) 2 RS-232/422/485 (MB331-CRM)
	USB	2 USB 2.0, 4 USB 3.0		2 USB 2.0, 4 USB 3.0 (MB330-CRM) 4 USB 3.0 (MB331-CRM)
	Display	1 VGA, 1 DVI-I (DVI-D signal) 1 DP++		1 HDMI, 2 DVI-I (MB330-CRM) 1 VGA, 1 HDMI (MB331-CRM)
	DIO	-	8-bit DIO	-
	Audio	Mic-in, Line-out, Line-in (opt.)		Mic-in, Line-in, Line-out
	PS/2	1	1	1 (MB330-CRM) 2 (MB331-CRM)
	Buttons	Power Button		Power Button
Power		Flex ATX 150W/250W/350W/400W		Flex ATX 250W
OS Support		Win7, WES7, Win8.1, Win10 IoT Enterprise, Debian, CentOS, Ubuntu		WES7, Win8.1
Mechanism	Construction	Sheet Metal		Sheet Metal
	Mounting	Wall Mount		Wall Mount
	Dimensions	349 x 140.2 x 290.9mm (W x H x D)		349 x 140.2 x 290.9mm (W x H x D)
Environment	Operating Temp.	0°C~45°C		0°C~45°C

## 6th/4th Gen Intel Core Processor-based Systems



Model Name		RM641-SD	RM641-HD
Platform		Desktop	
System	Processor	6th Gen Intel® Core™ Processor	4th Gen Intel® Core™ Processor
	Socket	LGA 1151	LGA 1150
	Max. Speed	2.4~3.7GHz	2.2~4.0GHz
	TDP	35/47/65W	35/45/53/54/65W
	Cache	3/4/6/8M	2/3/4/6/8M
	Chipset	Intel® Q170 Chipset	Intel® H81 Chipset
	BIOS	Insyde SPI 128Mbit	AMI SPI 64Mbit
Memory	Technology	Dual Channel DDR4 1866/2133MHz	Dual Channel DDR3 1333/1600MHz
	Max. Capacity	64GB	16GB
	Socket	4 DIMM	2 DIMM
Graphics	Connector	1 VGA, 1 DVI-I (DVI-D signal), 1 HDMI	1 VGA, 1 DVI-I (DVI-D signal)
Storage		3x 5.25" Optical Drive Bays 1x 3.5"/2.5" SATA 3.0 Drive Bay	
Expansion	PCIe, PCI	2 PCIe x16, 2 PCIe x4, 3 PCI	1 PCIe x16, 1 PCIe x4, 4 PCI (one shared with ISA slot), 2 ISA
	Mini PCIe	-	-
Audio	Audio Codec	Realtek ALC888	Realtek ALC886
Ethernet	Controller	1 Intel® I210, 1 Intel® I219	1 Intel® 82574, 1 Intel® I217
LED	Indicators	Power, HDD LED	
I/O	Ethernet (GbE)	2	2
	Serial	1 RS-232/422/485, 1 RS-232	2 RS-232/422/485
	USB	4 USB 2.0, 4 USB 3.0	4 USB 2.0, 2 USB 3.0
	Display	1 VGA, 1 DVI (DVI-D signal), 1 HDMI	1 VGA, 1 DVI-I (DVI-D signal)
	DIO	-	-
	Audio	Mic-in, Line-in, Line-out	
	PS/2	1	1
	Buttons	Power Button	Power, Reset Button
Power		ATX 500W	
OS Support		Win7, Win8.1, Win10	WES 7
Mechanism	Construction	SECC	
	Mounting	Rack Mount	
	Dimensions	483 x 177 x 451mm (W x H x D)	
Environment	Operating Temp.	0°C~45°C	



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